HP NetServer LXr 8500
PCI Hot Plug Utility
User Guide

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Contents

1 PCI Hot Plug Utility for Windows NT 1
Opening the Hot Plug Utility 1
Opening the PCI Hot Plug Utility 2
Powering Down a PCI Slot 5
Removing a Hot Plug Board 8
Powering Up a PCI Slot 12
2 PCI Hot Plug Utility for Novell NetWare 17
Overview 17
NetWare 5 Requirements 19
Novell Configuration Manager Console 20
Slot Options Menu 22
Slot Detailed Information Screen 24
Opening the User Interface 25
Powering Down a PCI Slot 26
Removing a Hot Plug Board 32
Replacing a Hot Plug Board 36
Powering Up a PCI Slot 39

1 PCI Hot Plug Utility for Windows NT

Opening the Hot Plug Utility

Use this topic only for Microsoft's Windows NT 4.0 on the HP NetServer LXr 8500 using the software utility to perform PCI Hot Plug Replacement (or Online Replacement) operations. This topic and its subsequent topics describe how to turn power Off and On to the PCI slots (P1-P10) using the PCI Hot Plug Utility.

For Novell's NetWare 5 NOS, go to the topics under Chapter 2 "Hot Plug Replacement (NetWare)".

CAUTION	To prevent a system crash or hang, never remove a PCI board from a slot with power on. Always use the Hot Plug Utility to turn power off to the Hot Plug slot before performing any replacements.

The PCI board is only Hot Plug-capable if it has a hot plug compliant driver available and installed on the HP NetServer. If the PCI board is not Hot Plug-capable, remove and replace the board with the HP NetServer's power turned off.

Microsoft’s Windows NT 4.0 does not, by itself, support hot plug replacement, but HP Configuration Assistant on the HP Navigator CD-ROM, installs the PCI Hot Plug Utility on the NT server, along with the system software and the drivers for some of the HP supported PCI Hot Plug boards. Through this Utility, Windows NT 4.0 does support hot replacement of identical boards. The PCI Hot Plug Utility is also found in the diskette library on the Navigator CD-ROM. If using manual installation, follow the installation instructions found in the readme.txt file to install the Utility on the NT NetServer.

The Hot Plug Utility is used to replace the PCI Hot Plug board in a four-step process:

1. Turning power off to the PCI slot
2. Removing the PCI board
3. Replacing the PCI board
4. Turning power on to the PCI slot

The Hot Plug Utility is used to turn power off to the PCI slot before removing the PCI board, and then after replacing the PCI board, it is used to turn power back on

to the PCI slot. Refer to the Help File for a description of the PCI Hot Plug Utility's buttons and functions.

NOTE The Power Button is the only button required to do basic Hot Plug Replacement.

Opening the PCI Hot Plug Utility

Use this procedure to open the PCI Hot Plug Utility in Windows NT 4.0.

NOTE If the left P (Power) LED is lit (green) in the PCI Hot Plug Utility, the corresponding Power LED on the rear panel will be green. This is also true for the right A (Attention) LED; that is, if the right A (Attention) LED is lit (red) in the PCI Hot Plug Utility, the corresponding Attention LED on the rear panel will be amber.

1. In Windows NT 4.0, click on the **Start** button and then select the **Programs** menu.
2. From the Programs menu, select PCI Hot Plug and then select the **PCI Hot Plug Utility**.

   A display similar to the example shown in Figure 1 appears.

   This example has 9 slots filled with PCI boards. Slot 1 shows no board installed and slot 2 has no hot plug compliant driver. Slots 2 to 6 and 9 to 10 all have power applied to the slot, shown by the P (Power) LED turned on, (left P LEDs are green with **Normal** in status field) and are operating normally. Slot 7 has a left P LED on (green), but also has a fault condition indicated by the right A (Attention) LED (red), with its status field displaying **Link Fault,** suggesting a corrective action. Slot 8 has a green P LED, but has ***Mixed – multiple device board** (represents a multifunction adapter) in the status field. See Help file for more information about functions and buttons.

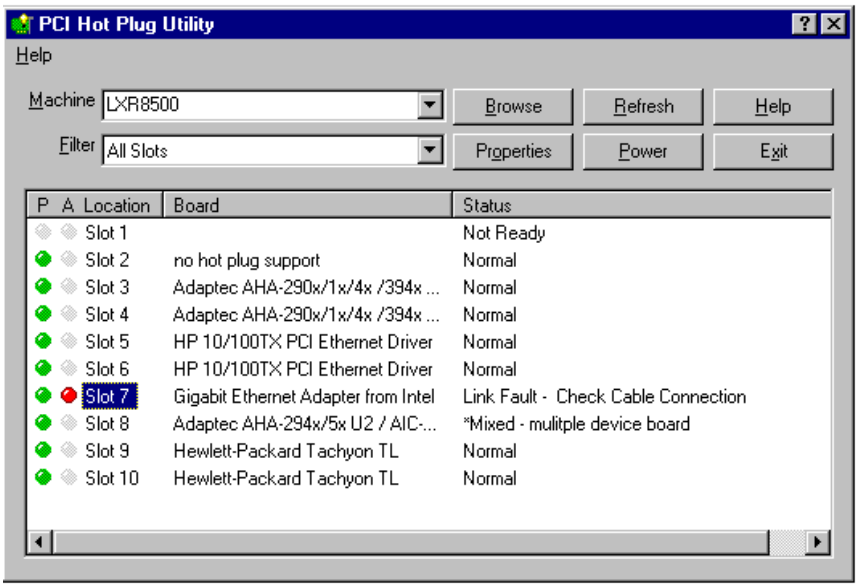

Figure 1. PCI Hot Plug Utility

3. If **no hot plug support** appears under **Board** in the Utility's window instead of the desired PCI board, one of the following conditions might be true:

   ◊ The PCI Hot Plug board is not supported by a hot plug compliant software driver.

   ◊ The software driver for the PCI Hot Plug board is not properly installed and loaded.

   See Windows NT Help for how to load drivers.

   ◊ The PCI board may not use a driver, or the driver is defective.

NOTE If you have a board without a hot plug compliant driver in one of the hot plug slots, the board will show up in the Utility as **no hot plug support**, and the Utility will not allow you to power down the slot.

4. Identify the physical location of the desired PCI Hot Plug board, using the PCI Hot Plug Utility and Figures 2 and 3.

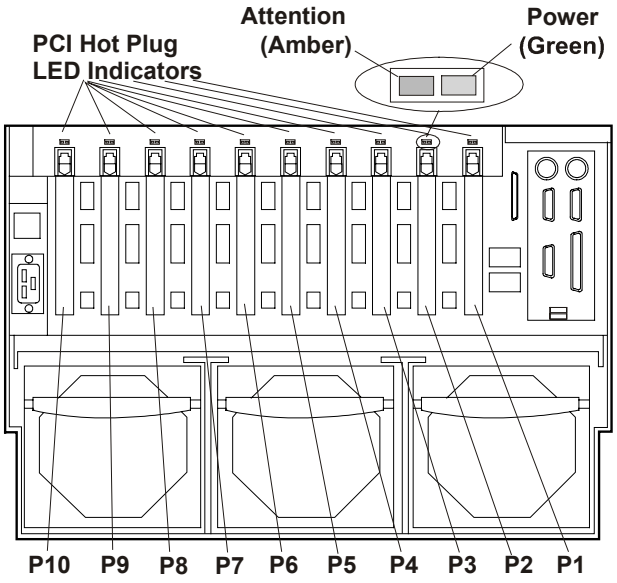

Figure 2. PCI Slot Locations (Rear view)

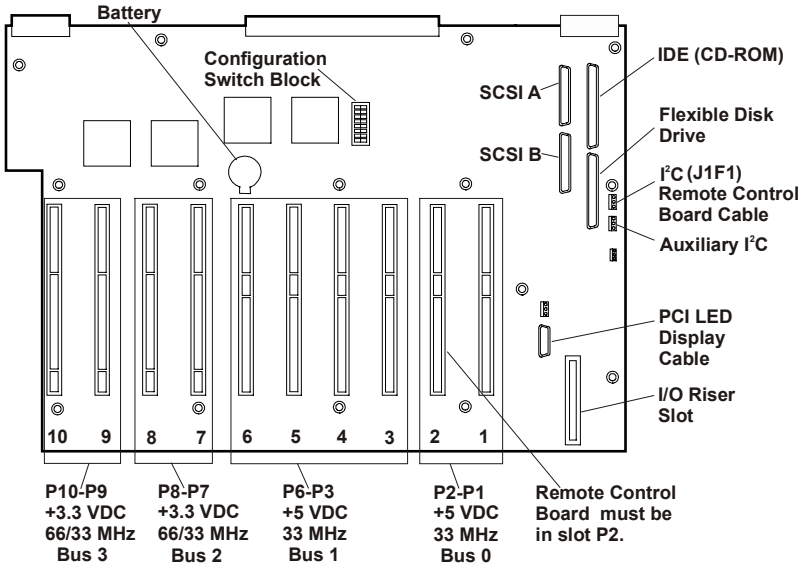

Figure 3. PCI Slot Locations (I/O Baseboard top view)

Powering Down a PCI Slot

Use this topic to select and power down a PCI slot on the I/O baseboard.

1. Select the desired PCI slot (slot P7) to replace by pointing to it with the mouse cursor. See Figure 4.

   This example has a red A (Attention) LED fault condition associated with it.

2. Left click on the desired slot (slot P7) with the mouse.

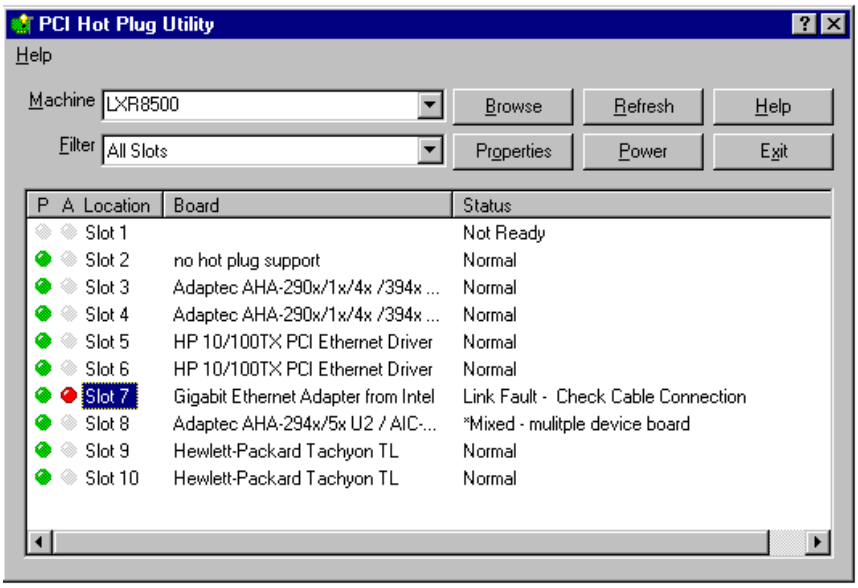

Figure 4. Selecting PCI Slot to Turn Power Off

CAUTION	Opening a PCI hold-down latch with power applied to the slot may result in a system crash or hang. Always use the Utility to first power off the slot. Turning off power to any slot will stop all input (I/O) or services associated with the board while power is turned off to the slot.

3. Click on the **Power** button in the upper right of the screen. See Figure 1.

   A pop-up prompt appears requesting conformation of this action. See Figure 5.

NOTE The Power button is the only button required to do basic Hot Plug Replacement operations.

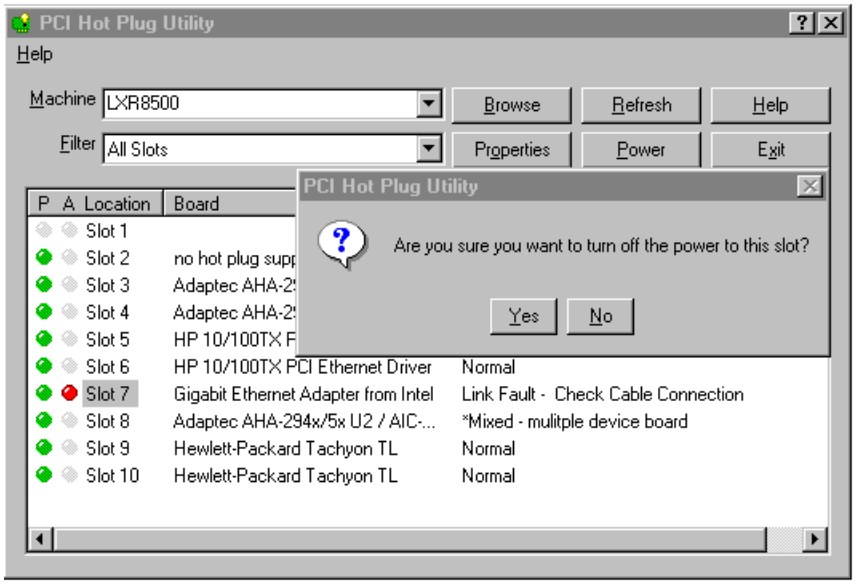

Figure 5. Pop-up Menu

4. Confirm your selection by clicking on **Yes**.

   As soon as confirmation is complete, the left P (Power) LED in the Utility window turns off (gray) and the slot status changes from "Link Fault" (or Normal*)* to **Not Ready**. The corresponding Power LED (green) for the PCI slot on the rear panel will also turn off. This means power to this slot is turned off. See Figure 6.

CAUTION If the rear panel Power LED for the desired PCI slot does not turn off, do not attempt to remove the PCI Hot Plug board. Return to Step 1 in this procedure to ensure you have selected the correct slot to power down.

NOTE If you have a PCI board with a non-compliant drive in the desired PCI slot, the PCI board will show up on the Utility's

display with **no hot plug support,** but the Utility will not allow you to power down the PCI slot.

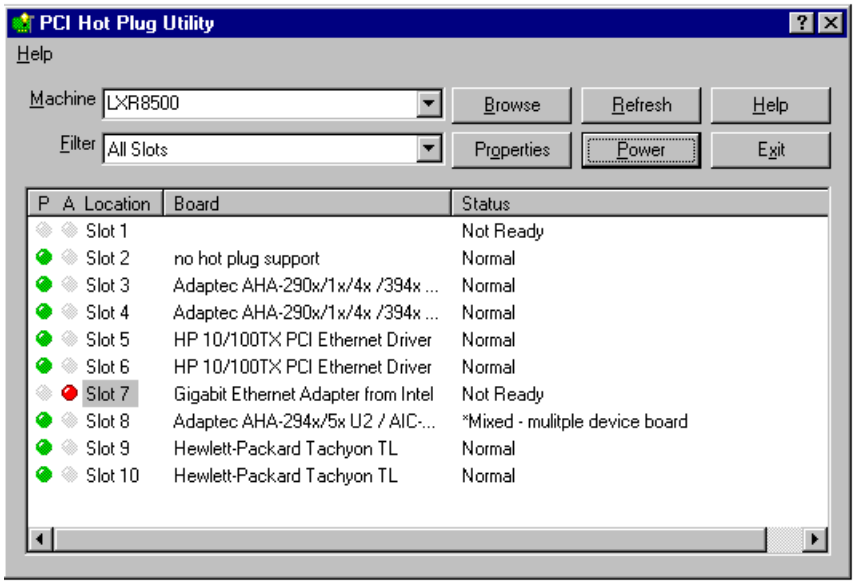
PCI Hot Plug Utility
Help
Machine LXR8500
Filter All Slots
Browse
Refresh
Help
Properties
Power
Exit
P A Location Board Status
Slot 1 Not Ready
Slot 2 no hot plug support Normal
Slot 3 Adaptec AHA-290x/1x/4x /394x ... Normal
Slot 4 Adaptec AHA-290x/1x/4x /394x ... Normal
Slot 5 HP 10/100TX PCI Ethernet Driver Normal
Slot 6 HP 10/100TX PCI Ethernet Driver Normal
Slot 7 Gigabit Ethernet Adapter from Intel Not Ready
Slot 8 Adaptec AHA-294x/5x U2 / AIC-... *Mixed - mulitple device board
Slot 9 Hewlett-Packard Tachyon TL Normal
Slot 10 Hewlett-Packard Tachyon TL Normal

Figure 6. PCI Slot is Powered Off

5. If the left P LED in the Hot Plug Utility window stays green, then consider these steps:

   a. Re-install the software driver and then repeat this procedure.

      Refer to the Windows NT help file to re-install the driver.

   b. Power down the HP NetServer, re-seat the PCI board, power up the NetServer, and then repeat Steps 2 to 4 in this procedure.

   c. Write down the part number and revision level of the PCI board and then contact the board's manufacturer to determine if a new software driver is required.

      See Help file for further instructions.

   d. If your are unable to turn power off to the PCI slot, refer to the "Installing Accessory Boards" section of your Installation Guide to power down the HP NetServer, remove the PCI board, and then replace it with another PCI board.

6. If the left P (Power) LED is turned off (gray), go to the next section, "Removing a Hot Plug Board" to remove the PCI Hot Plug board.

Removing a Hot Plug Board

Use this topic to physically remove a PCI Hot Plug Board from the slot.

1. At the front of the NetServer, remove the front bezel from the HP NetServer (refer to your Installation Guide).
2. Extend the HP NetServer chassis safely from the rack (refer to your Installation Guide).
3. Remove the PCI Access Panel (refer to your Installation Guide).

CAUTION	Do not drop screws or other metal objects into the HP NetServer.

4. Verify power to the desired PCI slot is turned off, by checking the desired PCI slot's Power LED (right) on the rear panel is off (gray).

   The right green Power LED must be OFF. See Figure 7 and Table 1.

5. If not, go back to the section "Powering Down a PCI Slot" and verify you have turned off power to the correct slot.
6. If you are unable to power down the slot, remove and install the PCI board in the PCI slot as described in the Installation Guide.

CAUTION	To prevent a possible system crash or hang do not continue with this procedure if you are unable to turn off power to the PCI slot.

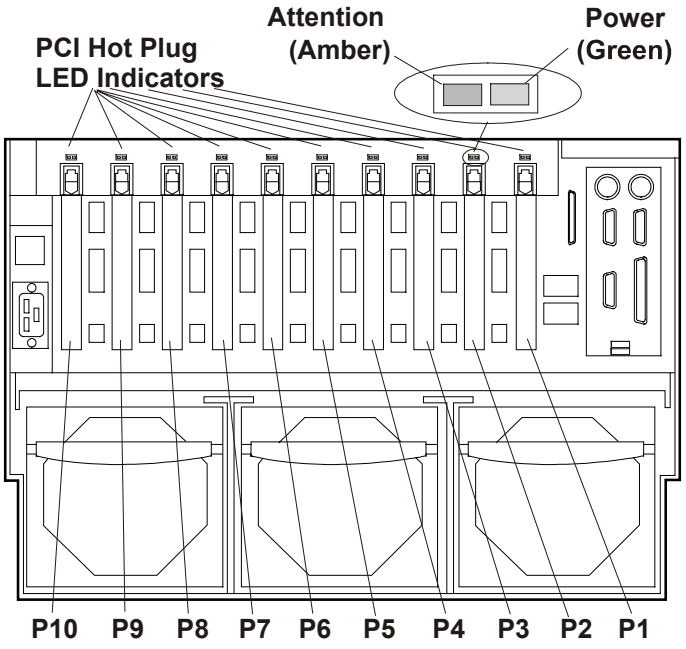

Figure 7. Hot Plug Slots

The following table decodes the LEDs for each PCI slot:

Table 1. PCI LED Power Code

Amber LED	Green LED	Indicates This Status
Off	On	Power to the slot is on, and the slot is operating normally. Do not remove the board from the slot.
On	On	Power to the slot is on, but the slot needs attention. See Help files for choices. Do not remove the board from the slot.
On	Off	Power to the slot is off, and the slot needs attention. You can safely remove the board from this slot.
Off	Off	Power to the slot is off. You can remove the board from this slot.

7. If the PCI board has a cable attached to it, label it before continuing.
8. Remove any cables attached to the PCI board.

NOTE Ensure you label any cables attached to the PCI board (disk controller, NIC, etc.), to identify it later when connecting the cable to the new or replacement PCI board.

9. Release the PCI hold-down latch to remove the board from the PCI slot.
   a. Press the center of the PCI hold-down latch (should hear a click). See Figure 8.
   b. Pull the latch to half open (allows the board to clear the latch). See Figure 8.

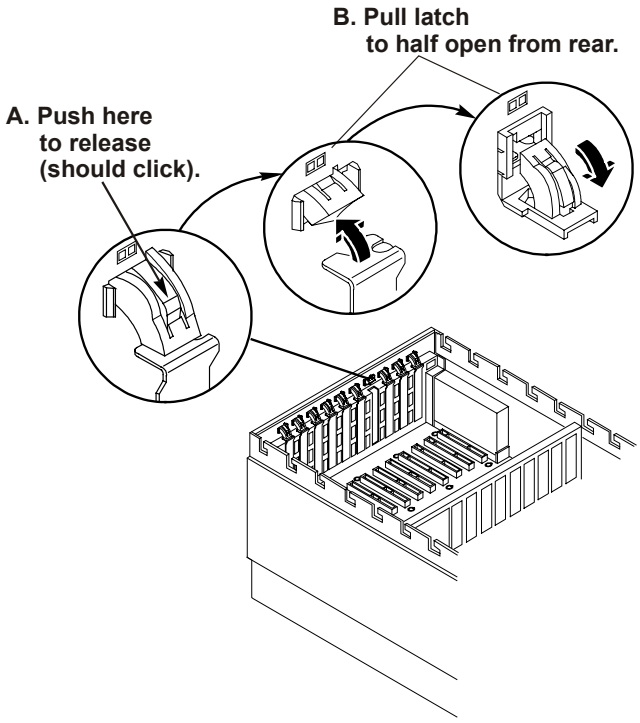

Figure 8. Releasing the PCI Board

NOTE The HP NetServer is shown with its top cover removed for clarity. Only the PCI Access Panel should be removed for this procedure. See Step 3.

10. If necessary, release the PCI card guide latch, allowing the PCI board to clear the card guide. See Figure 9.

    The PCI hold-down latch and PCI card guide latch are used to keep the PCI boards in place, since a screw is no longer used.

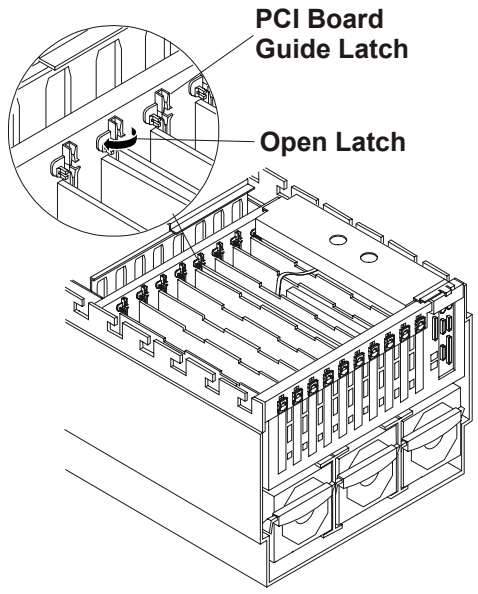

Figure 9. Opening the PCI Card Guide Latch

CAUTION	When handling electronic components, wear a wrist strap and use a static-dissipating work surface connected to the chassis when handling components. Ensure the metal of the wrist strap contacts your skin.

11. Grasp the edge of the PCI board firmly and pull upward. See Figure 10.

    Try to pull the board straight up without wiggling it side to side along the length of the board.

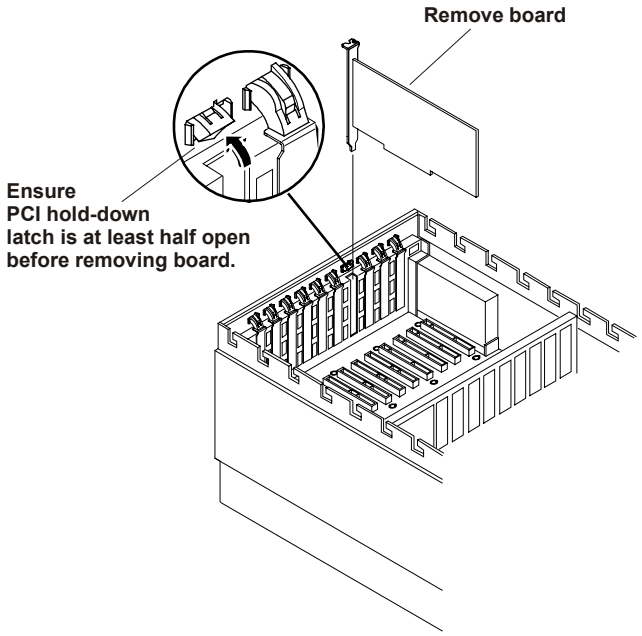

Figure 10. Removing PCI Boards

12. Place the board on an anti-static surface.
13. Go to the section "Replacing a Hot Plug Board" in your Installation Guide to install a new or replacement, but identical PCI Hot Plug board in the PCI slot.

Powering Up a PCI Slot

Use this procedure to apply power to a PCI slot (after replacing an existing PCI Hot Plug board with an identical PCI Hot Plug board).

1. If not already open, select the PCI Hot Plug Utility from Programs menu.
2. Left click on the desired PCI slot (Slot 7) with the **Not Ready** status.

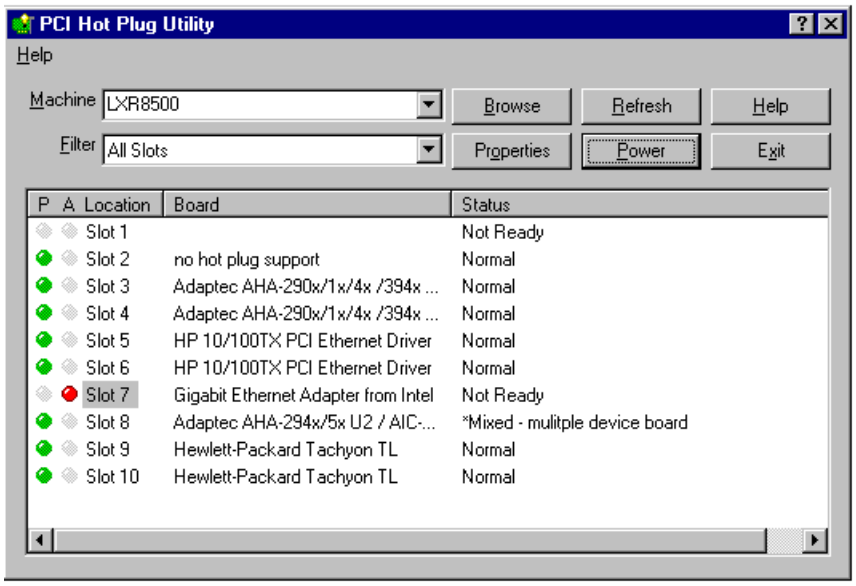

Figure 11. Selecting the PCI Slot to Turn Power On

NOTE If the A (Attention) LED was lit (red) when you powered down the slot, it will remain lit (red) until power to the slot is turned on.

3. Click on the Power button in the upper right of the menu. See Figure 11.

   A pop-up prompt appears asking you to confirm your choice. See Figure 12.

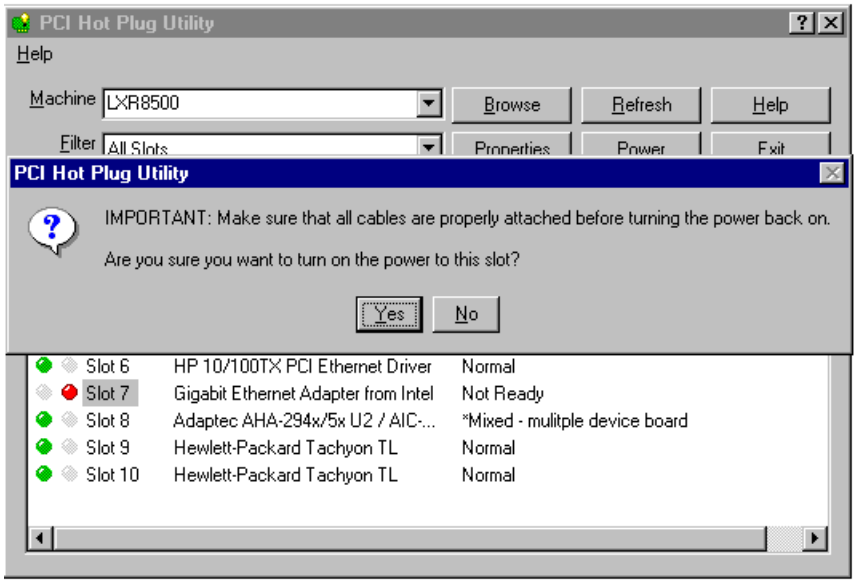
PCI Hot Plug Utility
Help
Machine
LXR8500
Browse
Refresh
Help
Filter
All Slots
Properties
Power
Exit
PCI Hot Plug Utility
IMPORTANT: Make sure that all cables are properly attached before turning the power back on.
Are you sure you want to turn on the power to this slot?
Yes
No
Slot 6 HP 10/100TX PCI Ethernet Driver Normal
Slot 7 Gigabit Ethernet Adapter from Intel Not Ready
Slot 8 Adaptec AHA-294x/5x U2 / AIC-... *Mixed - mulitple device board
Slot 9 Hewlett-Packard Tachyon TL Normal
Slot 10 Hewlett-Packard Tachyon TL Normal

Figure 12. Pop-up Menu

4. Confirm your selection by clicking on **Yes**.

   The pop-up prompt should disappear and the left P LED for the slot (slot 7) should turn green and after a few seconds the status should change from "Not Ready" to **Normal**. See Figure 13.

5. As the left P LED turns green, observe the right A LED and the board status while you wait a few seconds for the software driver to initialize the PCI board. See Figure 13.

   The left P (Power) LED should be green at this point.

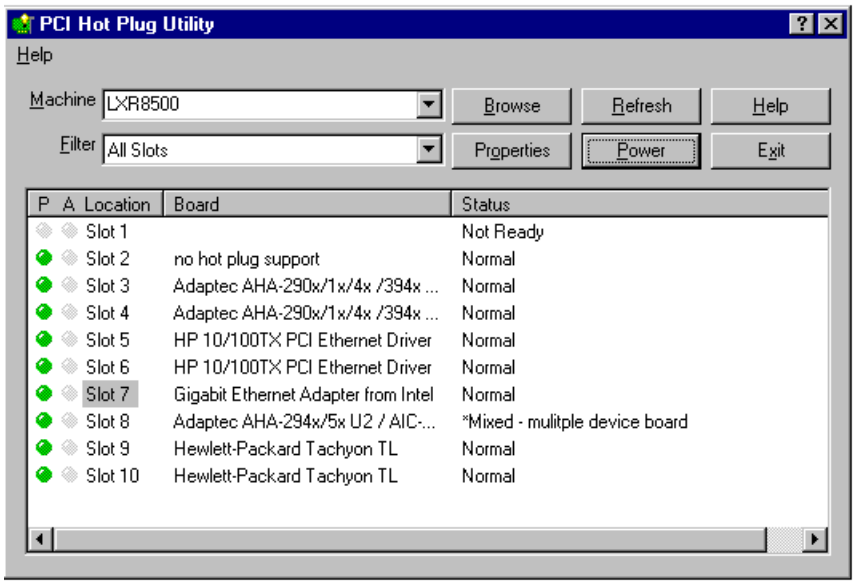

Figure 13. PCI Hot Plug Utility –Power Turned On

6. If the right A (Attention) LED stays red in the Hot Plug Utility window and the rear panel Attention LED stays Amber, then consider these steps:

   a. Ensure all the required cables are attached to the adapter.

   b. Power down the slot as described in Steps 2 to 5 of the section "Powering Down the PCI Slot" and then re-seat the PCI board.

   c. Ensure an identical PCI board was used as a replacement.

   d. Write down the part number and revision level of the PCI board and then contact the manufacturer to determine if a new software driver is required.

      If necessary, install a new driver and repeat this procedure. See the Help file for more information.

7. Observe the two LEDs for this slot on the rear panel.

The right Power LED on the rear panel LED display should be green and the left Attention LED should be off (gray) at this point.

8. If possible, verify the PCI board's operation, before continuing.
9. If you are assured of the PCI board's operation, including its driver, continue with the next step.
10. If all desired PCI Hot Plug boards have been installed, replace the PCI access panel.

    Refer to the section "Removing the PCI Access Panel" in your Installation Guide.

NOTE The PCI access panel uses the only short T-15 Torx® screws on the HP NetServer, to prevent the top cover from catching on the center support, when it is removed with the PCI access panel in place.

CAUTION To prevent damage to cables, or a disruption in service due to a disconnection of cables, use caution when sliding the chassis into the rack, if not using the Cable Management Arm.

11. If chassis work is complete, slide the HP NetServer chassis back into the rack (refer to your Installation Guide).
12. Return the HP NetServer to normal operation (refer to your Installation Guide).

2 PCI Hot Plug Utility for Novell NetWare

Overview

Use this topic only for Novell's NetWare 5's software interface to perform PCI Hot Plug Replacement (or Online Replacement) operations. This topic and its subsequent topics describe how to turn power Off and On to the PCI slots (P1-P10) using the software interface.

For Microsoft's Windows NT 4.0 NOS, go to the topics in Chapter 1.

CAUTION	To prevent a system crash or hang never remove a PCI board from a slot with power on. Always use the software interface NCMCON (Novell Configuration Manager Console) to turn off power to the slot before performing any Hot Plug operations.

The PCI board is only Hot Plug-capable if it has a hot plug compliant driver available and installed on the HP NetServer. If the PCI board is not Hot Plug-capable, remove and replace the board with the HP NetServer's power turned off.

NetWare 5 implements hot plug replacement of a PCI board in all ten slots, P1 through P10, through a four-step process:

1. Powering down the PCI slot
2. Removing the PCI board
3. Replacing the PCI board
4. Powering up the PCI slot

Turning power off and on to the PCI slots is performed through Novell's user interface, Novell Configuration Manager Console (NCMCON). The powering-down step includes unloading the driver associated with the selected board and then turning off power to the slot. Once power has been turned off it is possible to safely remove the PCI board and then replace it with an identical PCI board.

The powering-up step can only be performed after the new board has been installed in the slot. The powering-up step includes loading the driver to the PCI board and then safely turning on power to the slot.

The rear of the chassis provides two LEDs for each PCI Hot Plug slot to indicate its status. The LED indicators are related to the status shown in the user interfaces' main menu. The following table decodes the LEDs for each PCI slot. See Table 2 and Figure 14.

NOTE If the user interface, Novell Configuration Manager Console (NCMCON), displays a **No** in the "Hot Plug" column for each PCI (P1-P10) slot, then the correct hot plug controller driver (phpsbd.nlm) is not loaded. See Figure 14 and the Help files.

Table 2. PCI (Hot Plug) LED Indicators (rear view)

Amber LED	Green LED	Slot Status	Indicates This Status
Off	On	Ready	Powered on, but no driver loaded for board. Do not remove the board from the slot.
		Powered On	The PCI slot just power on, but the driver initiation is not complete yet. This only happens momentarily prior to completing driver loading. Do not remove the board from the slot.
		Active	Power to the slot is on, and the slot is operating normally. Do not remove the board from the slot.
On	Off	Powered Off (wrong board or no board)	Power to the slot is off, but the Amber LED is on, due to a failure in the Hot Replacement process. Typically this is the result of installing the wrong board, because the replacement board must be the same type as the original PCI board. This also occurs if the board is removed, emptying the slot, and power is turned on. You can safely remove the board from this slot.
Off	Off	Powered Off	Power to the slot is off. You can remove the board from this slot.

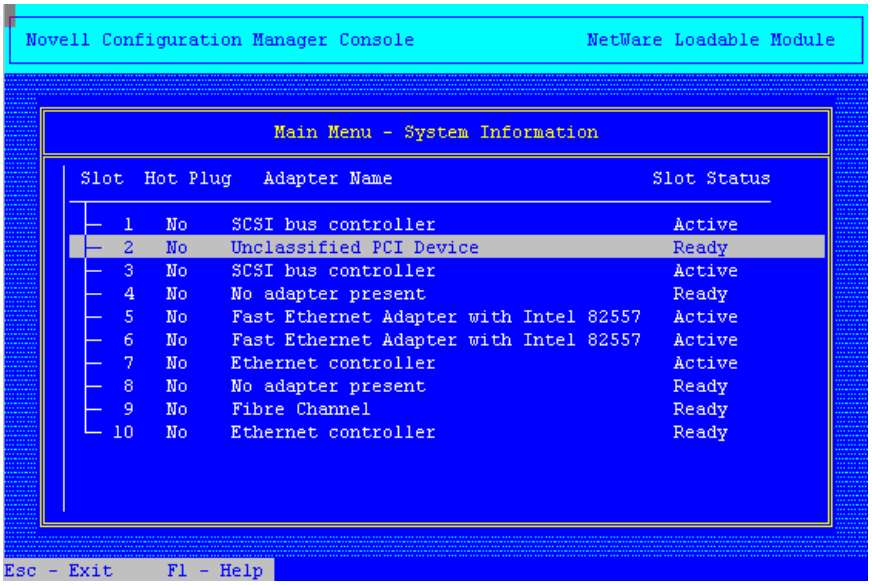
Novell Configuration Manager Console NetWare Loadable Module
Main Menu - System Information
Slot Hot Plug Adapter Name Slot Status
1 No SCSI bus controller Active
2 No Unclassified PCI Device Ready
3 No SCSI bus controller Active
4 No No adapter present Ready
5 No Fast Ethernet Adapter with Intel 82557 Active
6 No Fast Ethernet Adapter with Intel 82557 Active
7 No Ethernet controller Active
8 No No adapter present Ready
9 No Fibre Channel Ready
10 No Ethernet controller Ready
Esc - Exit F1 - Help

Figure 14. Main User Interface Screen

NetWare 5 Requirements

The PCI Hot Plug feature is operational in all ten slots, if:

- The NetWare's Hot Plug Controller driver (phpsbd.nlm) is loaded.
- The PCI Hot Plug board has a driver loaded or a drive for loading.

  The Hot Plug feature must be loaded before the Hot Plug feature can be enabled. If you selected **Express** or **Guided Setup**, all the NetWare Loadable Modules (NLMs) were installed onto the system, along with the correct drivers.

  The proper PCI Hot Plug Controller Driver is phpsbd.nlm, version 1.10 (or greater). During Express installation, the controller driver, phpsbd.nlm, is automatically installed on the HP NetServer from the HP Navigator CD.

  If you choose **Custom**, you may not have loaded the correct drivers (NLMs). When performing a manual install, it is necessary to obtain the phpsbd.nlm driver from the Navigator CD and copy it into the system directory. This file can be obtained from the Navigator diskette library "PCI Hot Plug for NetWare 5". In either case, ensure you load it prior to running the NetWare 5.0 Hot Plug user interface (ncmcon.nlm) or performing any Hot Plug operations.

- Refer to the Help files and readme.txt file on the PCI Hot Plug - NetWare 5 diskette created from the HP NetServer Navigator CD-ROM or the NetWare documentation concerning the Hot Plug option for more information.
- Refer also to HP's Help files and readme.txt file and the NetWare documentation for loading the Hot Plug drivers onto the HP NetServer.

NOTE	The order of loading the adapter board drivers and the other NetWare loadable modules (NLMs) is important. Please refer to the readme.txt file on the PCI Hot Plug - NetWare 5 diskette for details.

Novell Configuration Manager Console

The Novell Configuration Manager Console (NCMCON) is the Hot Plug user interface and provides status information, including error status, on each PCI slot on the I/O baseboard (P1-P10). The NCMCON user interface provides three menus to display the PCI Hot Plug status and actions. See Figures 15 through 17.

- Main Menu – This menu displays each PCI slot, PCI board, and its status. See Figure 15 and Table 3.
- Slot Options – This menu is used to change the operational status of the PCI slot. See Figure 16 and Table 4.
- Slot Detailed Information – This screen provides detailed information about the PCI slot and the PCI board installed in the slot. See Figure 17 and Table 5.

  The Slot Options screen or the Slot Detailed Information screen displays on top of the Main Menu screen, when the **Enter** key is used to highlight a PCI slot in the Main Menu screen.

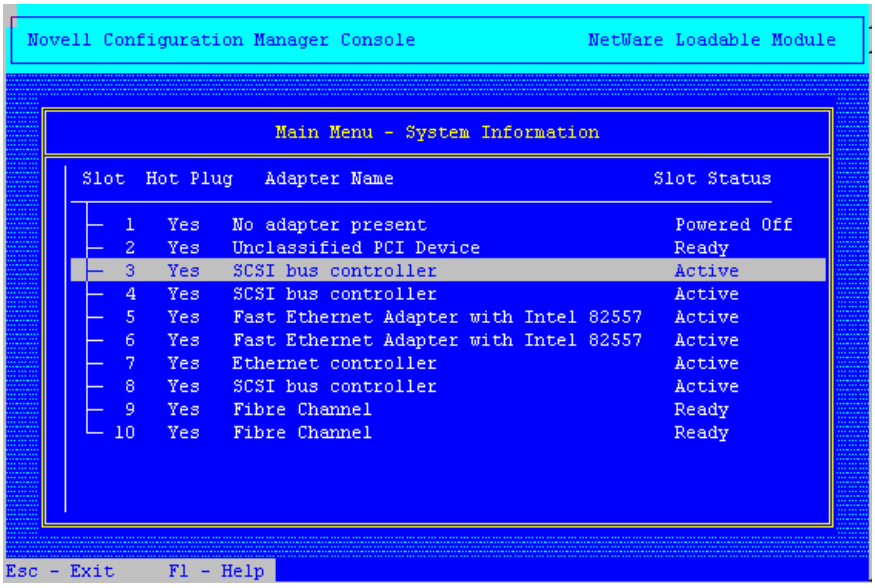
Novell Configuration Manager Console
NetWare Loadable Module
Main Menu - System Information
Slot Hot Plug Adapter Name Slot Status
1 Yes No adapter present Powered Off
2 Yes Unclassified PCI Device Ready
3 Yes SCSI bus controller Active
4 Yes SCSI bus controller Active
5 Yes Fast Ethernet Adapter with Intel 82557 Active
6 Yes Fast Ethernet Adapter with Intel 82557 Active
7 Yes Ethernet controller Active
8 Yes SCSI bus controller Active
9 Yes Fibre Channel Ready
10 Yes Fibre Channel Ready
Esc - Exit
F1 - Help

Figure 15. Main Menu Display

Table 3. Main Menu Fields and Descriptions

Field	Description
Slot Number	This field provides the PCI slot number for each PCI slot on the system board numbered from 1 to 10.
Hot Plug	This field indicates with a **Yes** or **No** if the PCI slot supports the Hot Plug feature. If slots P1 through P10 display No, then the controller driver **phpsbd.nlm** is not loaded. See Figure 15.
Adapter Name	This field indicates if a board is not present (No adapter present) or provides the name and model of the adapter in the PCI slot. If the adapter board can not be identified, Unclassified PCI Device is listed.

Field	Description
Slot Status	This field provides the operational status of each PCI slot. The seven possible indications in this field, with descriptions of each, are: **Powered Off** – Power to the slot is turned off and an adapter may or may not be present. **Powered On** – Power to the slot is turned On, but there is no adapter in the PCI slot. This may also appear, momentarily, prior to completing driver loading after a board replacement. **Ready** – Power to the slot is turned On, an adapter is in the slot, but there is no driver loaded for the adapter. Some boards do not require a driver to operate; for example, the HP TopTools Remote Control card in PCI slot 2. **Active** – Power to the slot is turned on, an adapter is in the slot, the adapter is using the loaded driver, and the adapter is operating correctly. **Failed** – The driver for this adapter (Hot Plug or non-Hot Plug) indicates a device failure. Only Hot Plug adapters can be removed and replaced without shutting down the system to replace with a good adapter of the same type. **Degraded** – A function on the multi-device adapter has failed, but other functions on the adapter continue to operate normally. **Processing** – This indicates an action of some kind is being performed on the slot or adapter, that is, the interface utility may be searching for the drive to load, or it may be unloading the driver before turning power off, etc.

Slot Options Menu

This menu appears on top of the Main Menu and lists the available options for changing or displaying the operational status of the PCI Hot Plug slot. See Figure 16 and Table 4.

The options displayed in the Slot Options menu, just above the Slot Detailed Information topic, depend on three items:

- The status of the PCI slot or PCI adapter board
- The System Capabilities

NOTE If a board slot is selected without the phpsbd.nlm loaded, the Slot Detailed Information screen will display automatically.

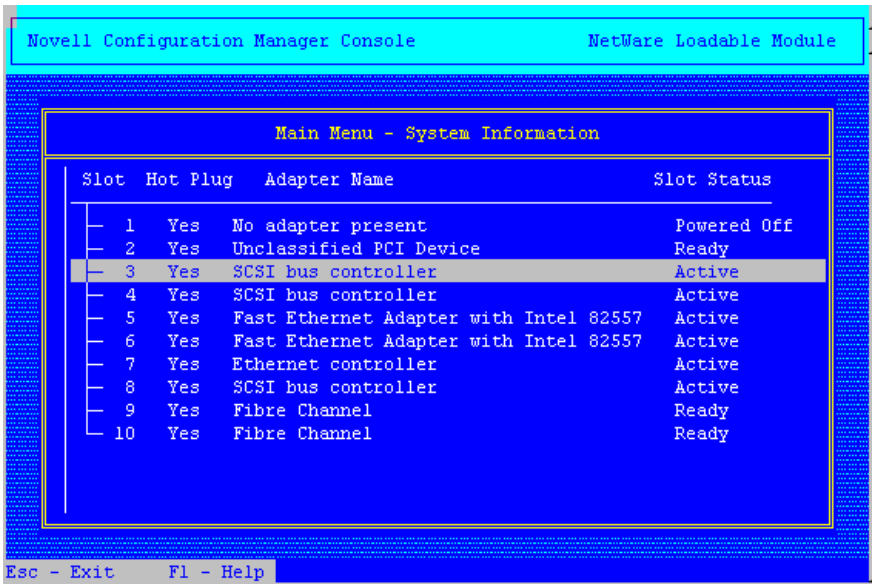
Novell Configuration Manager Console
NetWare Loadable Module
Main Menu - System Information
Slot Hot Plug Adapter Name Slot Status
1 Yes No adapter present Powered Off
2 Yes Unclassified PCI Device Ready
3 Yes SCSI bus controller Active
4 Yes SCSI bus controller Active
5 Yes Fast Ethernet Adapter with Intel 82557 Active
6 Yes Fast Ethernet Adapter with Intel 82557 Active
7 Yes Ethernet controller Active
8 Yes SCSI bus controller Active
9 Yes Fibre Channel Ready
10 Yes Fibre Channel Ready
Esc - Exit
F1 - Help

Figure 16. Slot Options Menu

Table 4. Slot Options Menu Selections

Slot Menu Item	Description
Remove Adapter	This indicates an adapter is in the slot and the slot is presently powered on.
Replace Adapter	This indicates the power to the slot is turned Off and the system only supports Hot Replacement. Hot Replacement means the existing adapter can be removed and must be replaced with an identical adapter.
Slot Detailed Information	This option is always present in the Slot Options menu. Selecting this option displays all pertinent information about the selected PCI slot and the adapter board in the PCI slot. See the topic Slot Detailed Information for more information.

Slot Menu Item	Description
Add Adapter **Power Off Slot** **Power On Slot**	These Slot Options are not supported by the HP NetServer LXr 8500.

Slot Detailed Information Screen

The Slot Detailed Information screen displays all the pertinent information about the selected PCI slot and the adapter board in the PCI slot. See Figure 17 and Table 5.

NOTE If a board slot is selected when the phpsbd.nlm is not loaded, the Slot Detailed Information screen displays automatically.

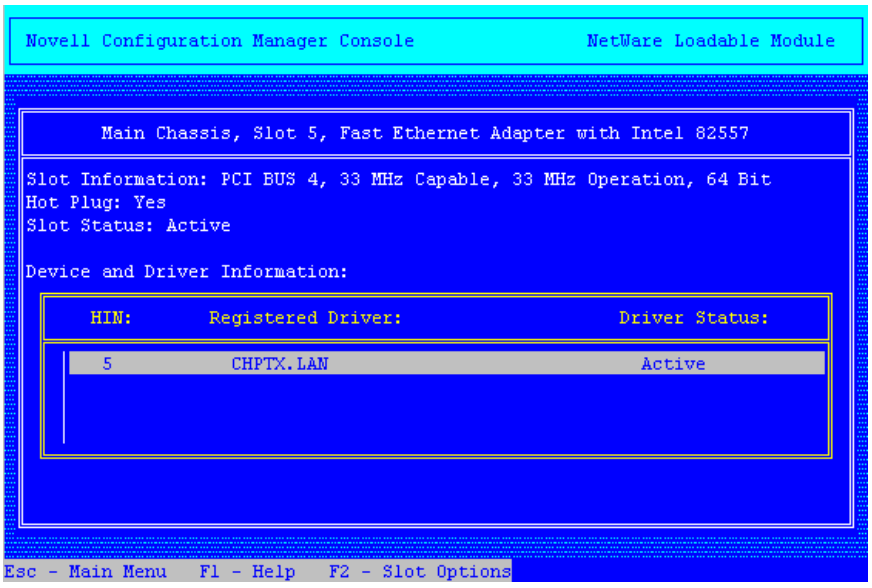

Figure 17. Slot Detailed Information Screen

Table 5. Slot Detailed Information Screen Fields

Field or Item	Description
Screen Title:	The screen title indicates the PCI slot number, and if a board is installed, the name and model of the adapter board.
Slot Information:	This field provides the bus type (PCI) and number, the speed capability (33 or 66 MHz) and actual speed of the bus, and the bit number (32 or 64-bit).
Hot Plug:	This field indicates the slot is Hot Plug-capable; **Yes** or **No**. All slots should have **Yes** listed.
Slot Status:	This indicates the present status of the PCI slot or the adapter.
Device and Driver Information:	
HIN:	This indicates the NetWare Hardware Instance Number (HIN) of each device.
Registered Driver:	This indicates the driver name loaded for this adapter board.
Driver Status:	This indicates the driver status: **Active** – The driver is loaded for the device. **Inactive** – There is no driver loaded for the device. **Failed** – The adapter device has failed. **Suspended** – The driver is loaded, but activity is suspended while the adapter is being added.

Opening the User Interface

Use this topic to open and use NetWare 5's software user interface. The Novell Configuration Manager Console (NCMCON) is used as the user interface to control the Hot Plug slots. It is used to remove or apply power to PCI slots and remove or load the driver to the slot. The Hot Plug slots must be powered off before removing PCI boards from the slots. The HP NetServer LXr 8500 supports Hot Plug operations for all ten PCI slots (P1 through P10).

CAUTION	To prevent a system crash or hang, do not open the PCI slot's PCI hold-down latch with power applied to the slot.

1. To start the Novell Configuration Manager Console (NCMCON), type the following line at the NetWare console prompt.

```
ncmcon.nlm
```

2. Press the **Enter** (or **Return**) key.

   The console (NCMCON) should load and the user interface's main menu will display on the monitor. All 10 PCI slots are shown in the display and all slots (P1 through P10) are used for hot plug operations and controlled by NCMCON. See Figure 18.

NOTE A **Yes** should be displayed in the "Hot Plug" column for each PCI Hot Plug (P1-P10) slot. If **No** is displayed instead, then the correct hot plug controller driver (phpsbd.nlm) is not loaded. See the HP Help File for more information.

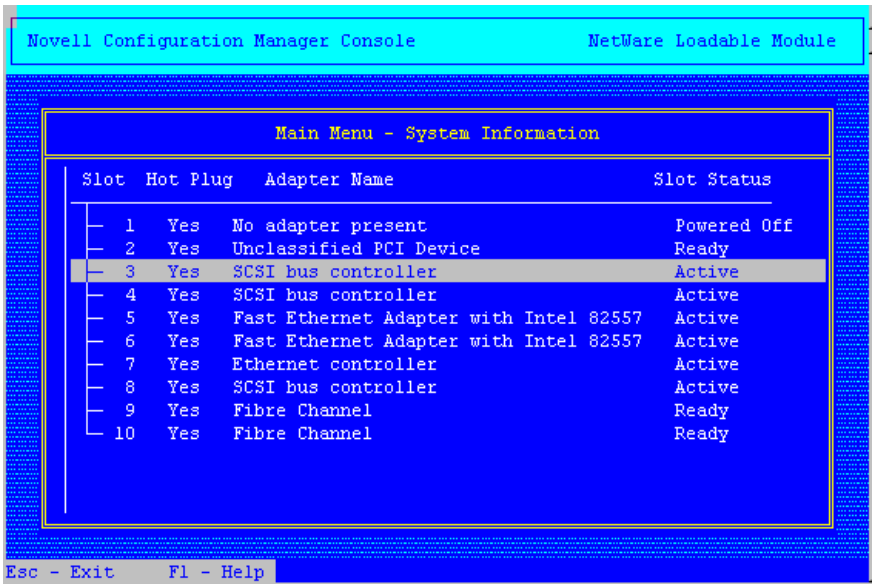
Novell Configuration Manager Console
NetWare Loadable Module
Main Menu - System Information
Slot Hot Plug Adapter Name Slot Status
1 Yes No adapter present Powered Off
2 Yes Unclassified PCI Device Ready
3 Yes SCSI bus controller Active
4 Yes SCSI bus controller Active
5 Yes Fast Ethernet Adapter with Intel 82557 Active
6 Yes Fast Ethernet Adapter with Intel 82557 Active
7 Yes Ethernet controller Active
8 Yes SCSI bus controller Active
9 Yes Fibre Channel Ready
10 Yes Fibre Channel Ready
Esc - Exit
F1 - Help

Figure 18. Main Menu Display

3. To turn power off to a PCI slot go to the next section, "Powering Down a PCI Slot".

Powering Down a PCI Slot

Use this topic to turn power off to the PCI slot before removing the adapter board from the PCI slot.

1. Open the Novell Configuration Manager Console (NCMCON), if it is not already open.

CAUTION	To prevent a system crash or hang never open the PCI hold-down latch with power on to the desired slot. Always use the software interface to turn off power to the slot before physical removing the PCI board.

2. Select a PCI slot (P1-P10) to remove the PCI Hot Plug board (P5).

   Use the Up and Down Arrow keys to select or highlight a desired PCI slot.

3. Press the **Enter** key when you have selected the desired slot (P5).

   ◊ If the phpsbd.nlm is loaded, the Slot Options popup menu displays; continue with Step 4. See Figure 19.

   ◊ If the phpsbd.nlm is not loaded, the **Slot Detailed Information** screen displays. See the Help file for more information.

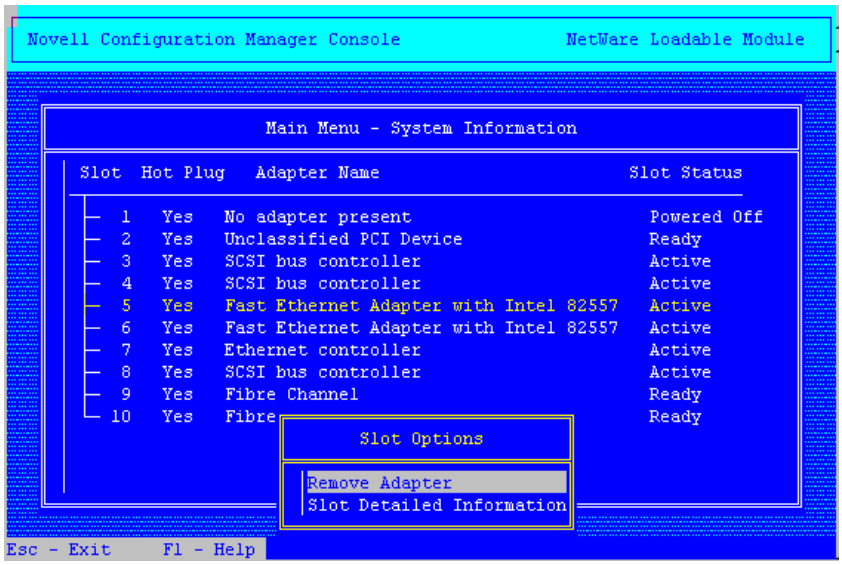
Novell Configuration Manager Console
NetWare Loadable Module
Main Menu - System Information
Slot Hot Plug Adapter Name Slot Status
1 Yes No adapter present Powered Off
2 Yes Unclassified PCI Device Ready
3 Yes SCSI bus controller Active
4 Yes SCSI bus controller Active
5 Yes Fast Ethernet Adapter with Intel 82557 Active
6 Yes Fast Ethernet Adapter with Intel 82557 Active
7 Yes Ethernet controller Active
8 Yes SCSI bus controller Active
9 Yes Fibre Channel Ready
10 Yes Fibre Ready
Slot Options
Remove Adapter
Slot Detailed Information
Esc - Exit
F1 - Help

Figure 19. Slot Options Menu – Remove Adapter

4. Select **Remove Adapter** in the Slot Options popup menu. See Figure 19.

   Use the Up and Down Arrow keys to select or highlight the option.

5. Press the **Enter** key when you have selected the desired option.

   The Slot Options popup menu disappears and displays the popup menus in Figure 20, titled:

   `Driver Is Loaded – Next Step`

NOTE The driver is removed from control of the PCI slot, but not from the list of drivers held in the HP NetServer under NetWare 5.

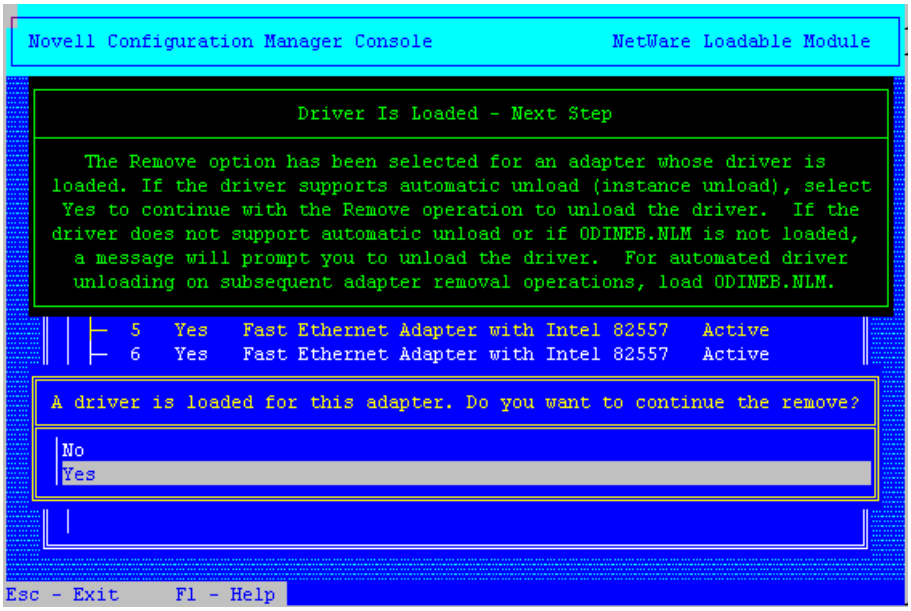
Novell Configuration Manager Console
NetWare Loadable Module
Driver Is Loaded - Next Step
The Remove option has been selected for an adapter whose driver is loaded. If the driver supports automatic unload (instance unload), select Yes to continue with the Remove operation to unload the driver. If the driver does not support automatic unload or if ODINEB.NLM is not loaded, a message will prompt you to unload the driver. For automated driver unloading on subsequent adapter removal operations, load ODINEB.NLM.
5 Yes Fast Ethernet Adapter with Intel 82557 Active
6 Yes Fast Ethernet Adapter with Intel 82557 Active
A driver is loaded for this adapter. Do you want to continue the remove?
No
Yes
Esc - Exit
F1 - Help

Figure 20. Driver Is Loaded Screen

6. Select **Yes** in the pop-up menu. See Figure 20.

   ◊ If the PCI board is a Disk Drive Controller, with various drives connected to it and operating, a screen appears concerning dismounting the disk drives. See Figure 21.

   ◊ If the PCI board type is not a Disk Drive Controller, the pop-up menu disappears and the main menu remains, but the slot's status (slot P5) changes from "Ready" to **Powered Off.** See Figure 22 and skip to Step 8.

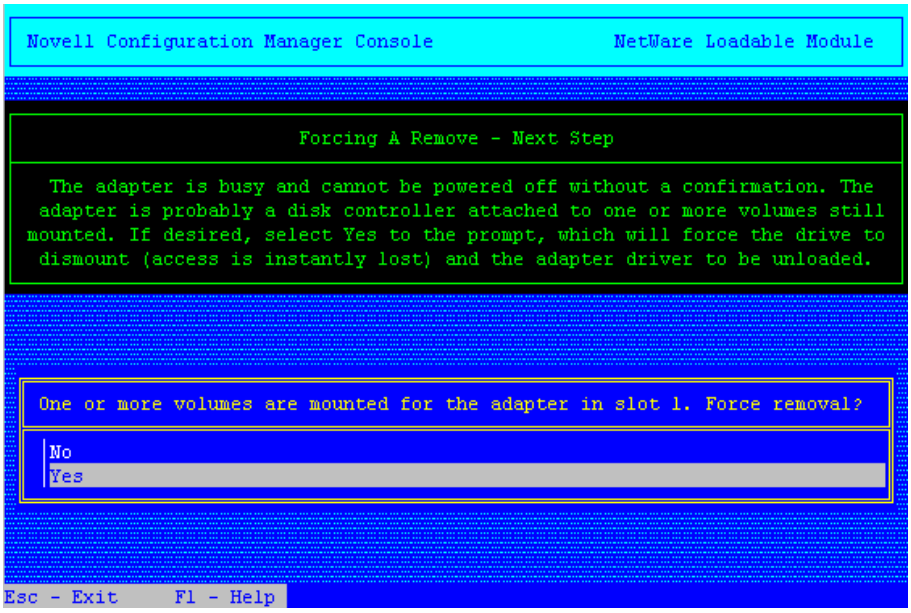
Novell Configuration Manager Console
NetWare Loadable Module
Forcing A Remove - Next Step
The adapter is busy and cannot be powered off without a confirmation. The adapter is probably a disk controller attached to one or more volumes still mounted. If desired, select Yes to the prompt, which will force the drive to dismount (access is instantly lost) and the adapter driver to be unloaded.
One or more volumes are mounted for the adapter in slot 1. Force removal?
No
Yes
Esc - Exit
F1 - Help

Figure 21. Disk Controller Dismount Screen

CAUTION	Selecting **Yes** to the "Forcing A Remove" screen will dismount any disk drives connected to a Disk Drive Controller, which prevents access to the disk drives by any applications or users through the HP NetServer.

7. If you are ***sure*** it is safe to dismount the drives from the Disk Drive Controller, select **Yes** to continue.

   The "Force A Remove" screen disappears and the main menu remains, but the slot's status (slot P5) changes from "Ready" to **Powered Off**. See Figure 22.

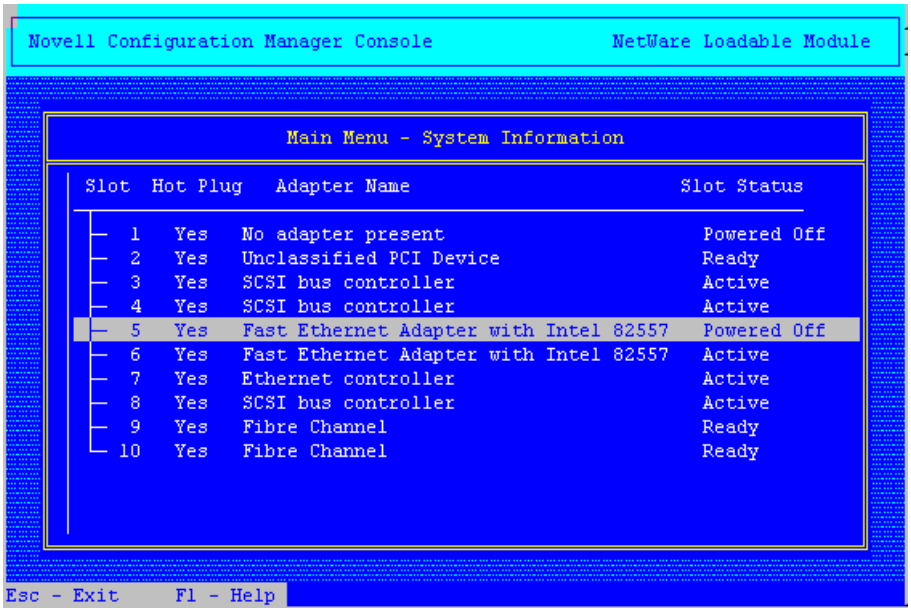
Novell Configuration Manager Console
NetWare Loadable Module
Main Menu - System Information
Slot Hot Plug Adapter Name Slot Status
1 Yes No adapter present Powered Off
2 Yes Unclassified PCI Device Ready
3 Yes SCSI bus controller Active
4 Yes SCSI bus controller Active
5 Yes Fast Ethernet Adapter with Intel 82557 Powered Off
6 Yes Fast Ethernet Adapter with Intel 82557 Active
7 Yes Ethernet controller Active
8 Yes SCSI bus controller Active
9 Yes Fibre Channel Ready
10 Yes Fibre Channel Ready
Esc - Exit
F1 - Help

Figure 22. PCI Slot Changes to Powered Off

8. Verify the corresponding green Power LED on the rear of the HP NetServer is turned off, which verifies the correct PCI slot has been powered down.

   Refer to Figure 23 and Table 6 before continuing with the procedure.

CAUTION	If the LEDs on the rear of the chassis indicate power is still applied to the slot, return to Step 2 in this procedure to ensure you have selected the correct slot to power down. See Figure 23 and Table 6.

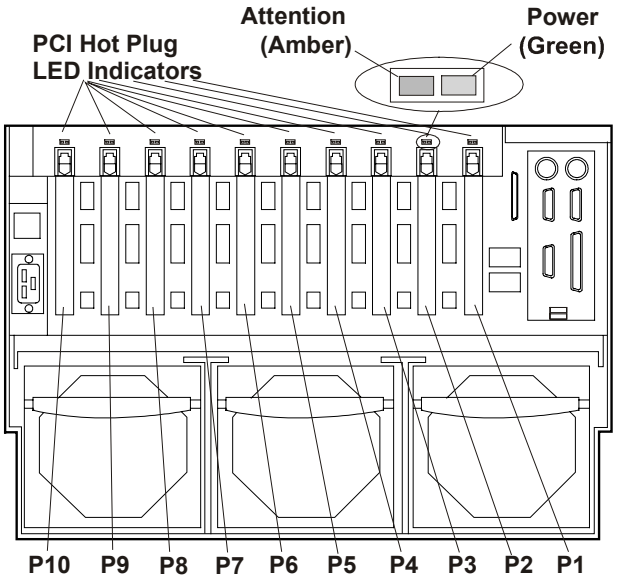

Figure 23. PCI Slots and LED Indicators

Table 6. PCI (Hot Plug) LED Code (Rear of Chassis)

Amber LED	Green LED	Slot Status	Indicates This Status
Off	On	Ready	Powered on, but no driver loaded for board. Do not remove the board from the slot.
		Powered On	The PCI slot just power on, but the driver initiation is not complete yet. This only happens momentarily prior to completing driver loading. Do not remove the board from the slot.
		Active	Power to the slot is on, and the slot is operating normally. Do not remove the board from the slot.
On	Off	Powered Off (wrong board or no board)	Power to the slot is off, but the Amber LED is on, due to a failure in the Hot Replacement process. Typically this is the result of installing the wrong board, because the replacement board must be the same type as the original PCI board. This also occurs if the board is removed, emptying the slot, and power is turned on. You can safely remove the board from this slot.
Off	Off	Powered	Power to the slot is off. You can safely remove the

Off board from this slot.

9. If the Slot Status for the desired PCI slot changes to **Powered Off,** go to next section, "Removing a Hot Plug Board", to physically remove the PCI board from the PCI slot (slot P5).

Removing a Hot Plug Board

Use this topic to physically remove a PCI Hot Plug Board from its PCI slot.

1. At the front of the HP NetServer, remove the front bezel from the NetServer (refer to your Installation Guide).
2. Extend the HP NetServer chassis ***safely*** from the rack (refer to your Installation Guide).
3. Remove the PCI Access Panel (refer to your Installation Guide).

CAUTION	Do Not Drop Screws or Other Metal Objects into the HP NetServer.

4. Verify power to the desired PCI slot is turned off, by checking the power LED associated with the desired PCI slot. See Figure 24 and Table 7.

   The green Power LED must be OFF, before attempting to open the PCI hold-down latch.

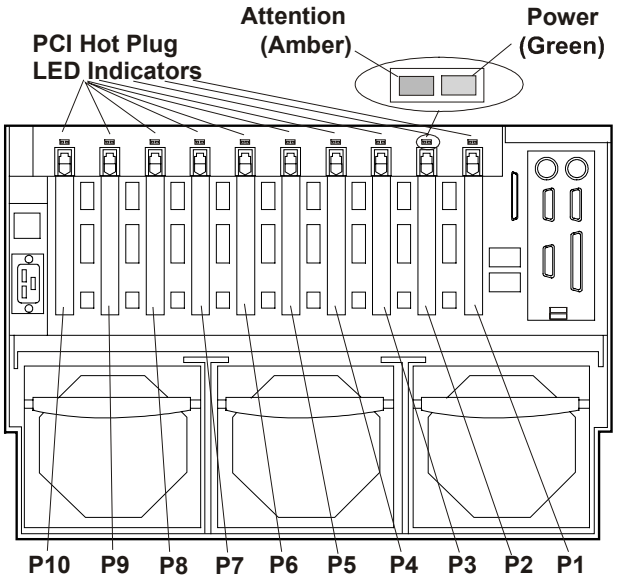

Figure 24. Hot Plug Slots and LEDs

Table 7 decodes the LEDs for each PCI slot:

Table 7. PCI (Hot Plug) LED Codes (rear panel view)

Amber LED	Green LED	Slot Status	Indicates This Status
Off	On	Ready	Powered on, but no driver loaded for board. Do not remove the board from the slot.
		Powered On	The PCI slot just power on, but the driver initiation is not complete yet. This only happens momentarily prior to completing driver loading. Do not remove the board from the slot.
		Active	Power to the slot is on, and the slot is operating normally. Do not remove the board from the slot.
On	Off	Powered Off (wrong board or no board)	Power to the slot is off, but the Amber LED is on, due to a failure in the Hot Replacement process. Typically this is the result of installing the wrong board, because the replacement board must be the same type as the original PCI board. This also occurs if the board is removed, emptying the slot, and power is turned on. You can safely remove the board from this slot.

Amber LED	Green LED	Slot Status	Indicates This Status
Off	Off	Powered Off	Power to the slot is off. You can safely remove the board from this slot.

5. If not, go back to the software interface NCMCON and verify you have turned off power to the correct slot.
6. If you are unable to power down the slot, remove and install a PCI board in the Hot Plug slot as described in your Installation Guide.
7. Do not continue with this procedure, if you are unable to power down the desired PCI slot.

CAUTION	To prevent a system crash or hang do not open the PCI hold-down latch, if you are unable to turn off power to the PCI slot, using the software interface (NCMCON).

8. Press the PCI hold-down latch to release the PCI board in the slot. See Figure 25.

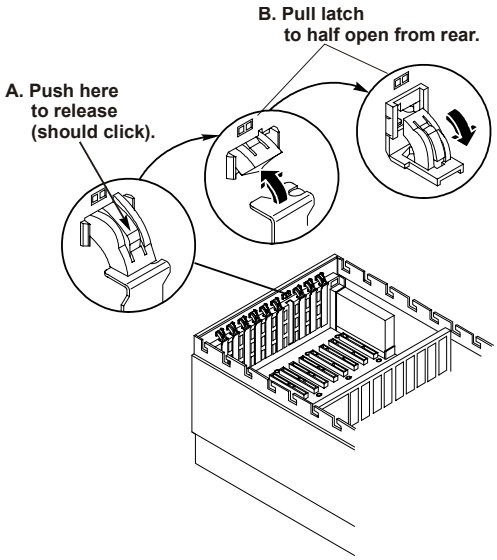

Figure 25. Opening the PCI Hold-Down Latch

The PCI hold-down latch is used to keep the PCI boards in place and to activate the PCI slot power switch and PCI LED board.

NOTE The HP NetServer is shown with its top cover removed for clarity. Only the PCI Access Panel should be removed for this procedure.

9. Open the PCI board-guide latch before removing the PCI board. See Figure 26.

CAUTION Do not bend the PCI board to remove it from the slot.

If the PCI board is full-length, the PCI board guide latch at the rear of the PCI slot is used to hold the board in place. The latch at the top of PCI board guide prevents the board from moving during HP NetServer transportation and handling when performing PCI Hot Plug operations.

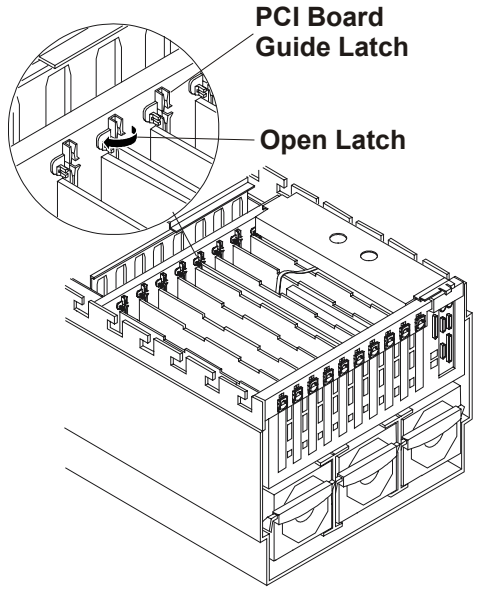

Figure 26. PCI Board Guide Latch

CAUTION	When handling electronic components, wear a wrist strap and use a static-dissipating work surface connected to the chassis when handling components. Ensure the metal of the wrist strap contacts your skin.

10. Grasp the edge of the PCI board firmly and pull upward. See Figure 27.

    Try to pull the board straight up without wiggling it side to side along the length of the board.

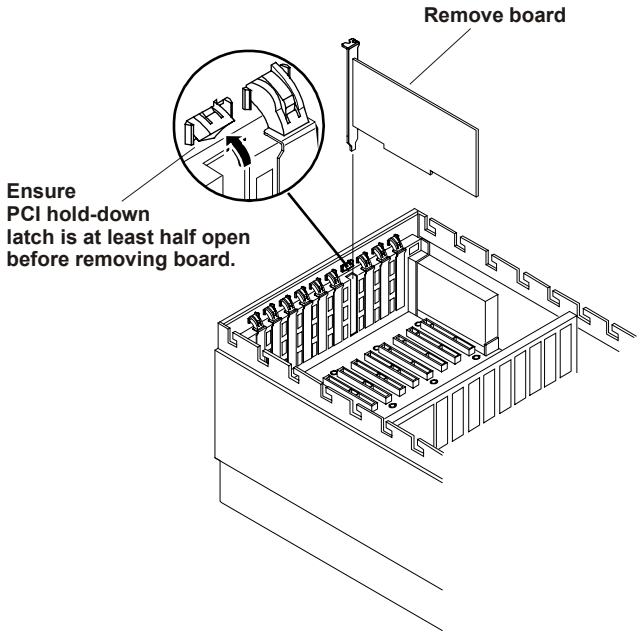

Figure 27. Removing PCI Boards

11. Place the PCI board on a static free surface.
12. Go to the next section "Replacing a PCI Hot Plug Board" to install a new, but identical PCI Hot Plug board in the PCI slot.

Replacing a Hot Plug Board

Use this topic to replace a PCI Hot Plug Board. The following conditions must be met before replacing a PCI Hot Plug Board:

- The desired PCI slot must be powered off.
- The replacement PCI Hot Plug board must be identical to the board it replaces, or use the same software driver.

NOTE Some full-length PCI boards have a plastic "handle" (board extender) on one end. If the handle interferes with the board's installation, remove the handle from the board. **Do not bend** the board to make it fit.

1. Read the documentation included with the adapter board and follow any special instructions provided.

CAUTION To prevent a system crash or hang do not attempt this procedure if you are unable to turn off power to the PCI Hot Plug slot.

2. Verify the Power LED above the desired PCI slot on the rear panel is off.

CAUTION When handling electronic components, wear a wrist strap and use a static-dissipating work surface connected to the chassis when handling components. Ensure the metal of the wrist strap contacts your skin.

3. Remove the PCI board from its protective packaging.

CAUTION **Do not bend** the PCI board to install it into the slot.

If the full-length PCI board has a handle on the end of the board that prevents its installation, remove the handle before installing the board.

4. If the PCI board is a full-length board, with a handle attached to its end, remove the handle before installing the board into the slot.
5. Align the board with its slot, along its full length, and position it into the slot. See Figure 28.
6. Push the PCI board down into its PCI connector in the I/O baseboard.

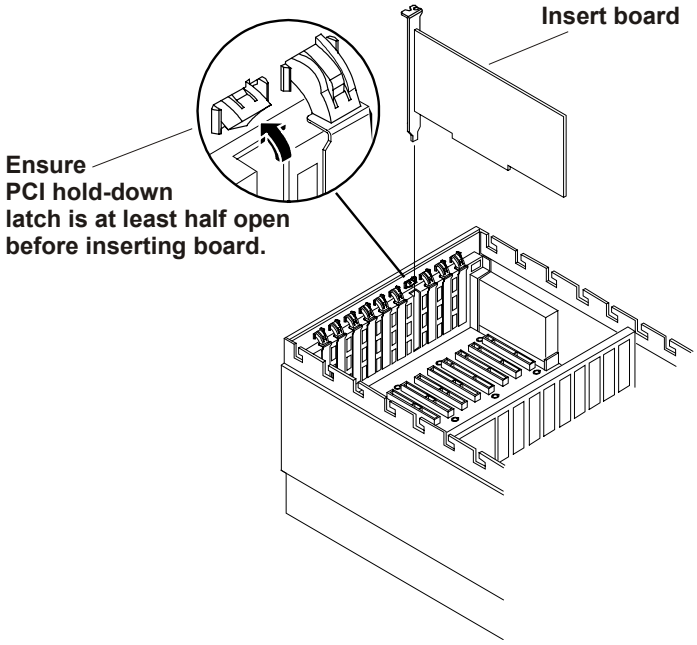

Figure 28. Installing the Accessory Board

7. Close the PCI hold-down latch, by pushing it in from the rear of the NetServer, until it clicks. See Figure 29.

   The PCI hold-down latch should click when you push it into place.

8. Close the latch on the PCI board guide. See Figure 29.

9. If the installed accessory board requires an external connection, or a connection to the I/O baseboard, ensure the cable is properly attached.

   Refer to the accessory board documentation for connection requirements.

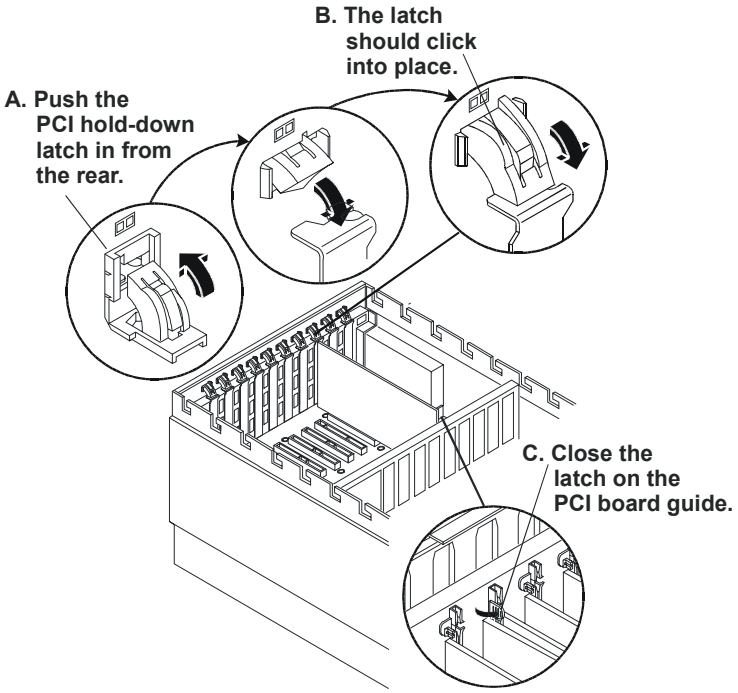

Figure 29. Closing the PCI Hold-Down Latch

NOTE	If the PCI hold-down latch does not fully close (click), the slot will not be powered on when you attempt to power on the slot.

10. Ensure the PCI hold-down latch is closed and the board is fully seated, before continuing.
11. Go to the next section, "Powering UP the PCI Slot", to power up the slot and complete the verification of the PCI board's software driver and its operation.

Powering Up a PCI Slot

Use this topic to power up the PCI slot using the software interface NCMCON, which selects the correct driver.

1. Open the Novell Configuration Manager Console (NCMCON), if not already open.

2. Select the desired PCI slot (P5) and press **Enter**.

   ◊ If a PCI board ***does not*** occupy the board slot, an error message screen displays, "No Adapter Detected", and the Amber LED for the slot turns on. See HP Help File for more information.

   ◊ If the replacement PCI board is not identical to the previous PCI board, an error message screen displays, "Adapter Is Not the Same". You must replace with an identical PCI board. Replace the board and repeat Step 2. See HP Help File for more information.

   ◊ If the identical PCI board occupies the board slot, the "Power On Slot" screen opens and provides you with a choice as shown in Figure 30.

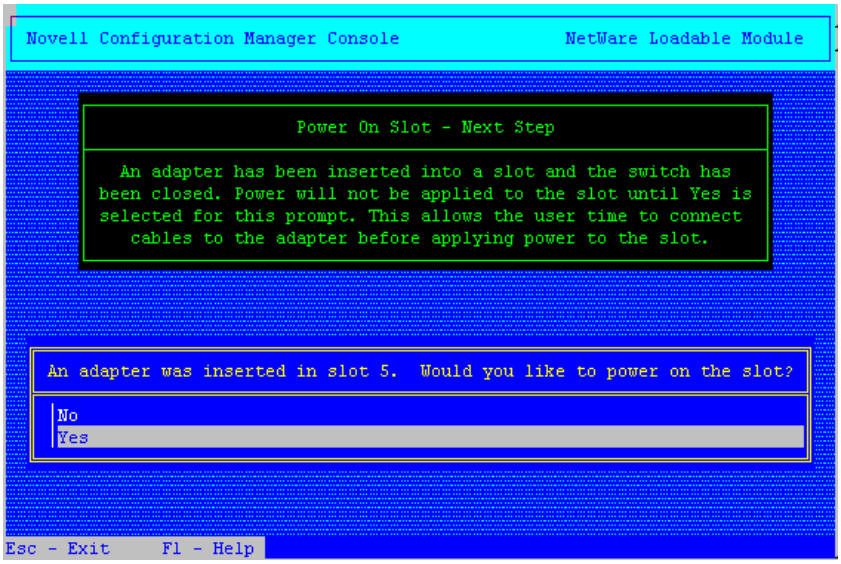
Novell Configuration Manager Console
NetWare Loadable Module
Power On Slot - Next Step
An adapter has been inserted into a slot and the switch has been closed. Power will not be applied to the slot until Yes is selected for this prompt. This allows the user time to connect cables to the adapter before applying power to the slot.
An adapter was inserted in slot 5. Would you like to power on the slot?
No
Yes
Esc - Exit
F1 - Help

Figure 30. Sot Options Menu – Replace Adapter

3. Select **Yes** and press **Enter.**

   A prompt appears at the bottom of the screen as shown in Figure 31.

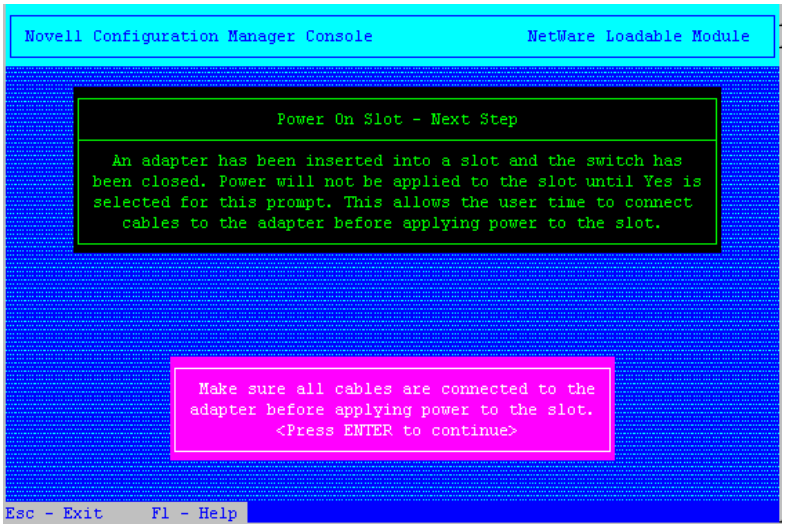
Novell Configuration Manager Console
NetWare Loadable Module
Power On Slot - Next Step
An adapter has been inserted into a slot and the switch has been closed. Power will not be applied to the slot until Yes is selected for this prompt. This allows the user time to connect cables to the adapter before applying power to the slot.
Make sure all cables are connected to the adapter before applying power to the slot.
<Press ENTER to continue>
Esc - Exit
F1 - Help

Figure 31. Cable Connection Prompt

4. Press **Enter** to acknowledge the prompt and continue the procedure.

   The Hardware Insertion/Removal Detection screen appears as shown in Figure 32.

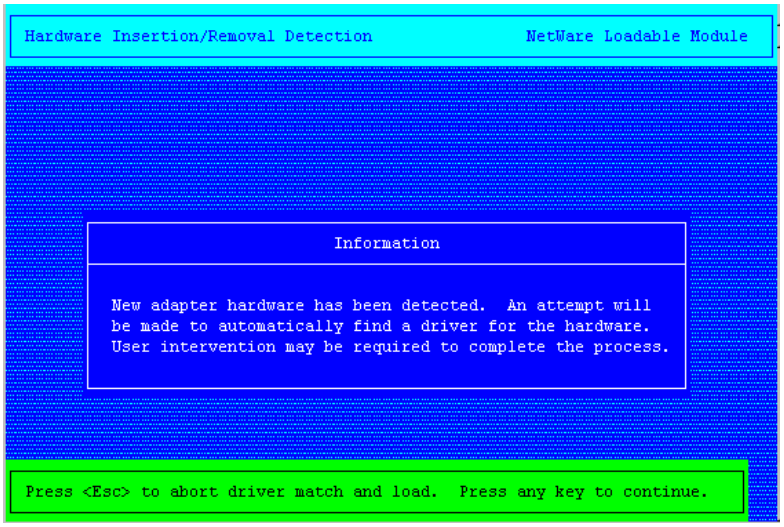
Hardware Insertion/Removal Detection
NetWare Loadable Module
Information
New adapter hardware has been detected. An attempt will be made to automatically find a driver for the hardware. User intervention may be required to complete the process.
Press <Esc> to abort driver match and load. Press any key to continue.

Figure 32. Hardware Detection screen

5. Press any key to continue, except the "Esc" key, and NetWare will load the appropriate driver for the adapter board.

   All prompts disappear and the main menu appears with desired PCI Slot (P5) active. See Figure 33.

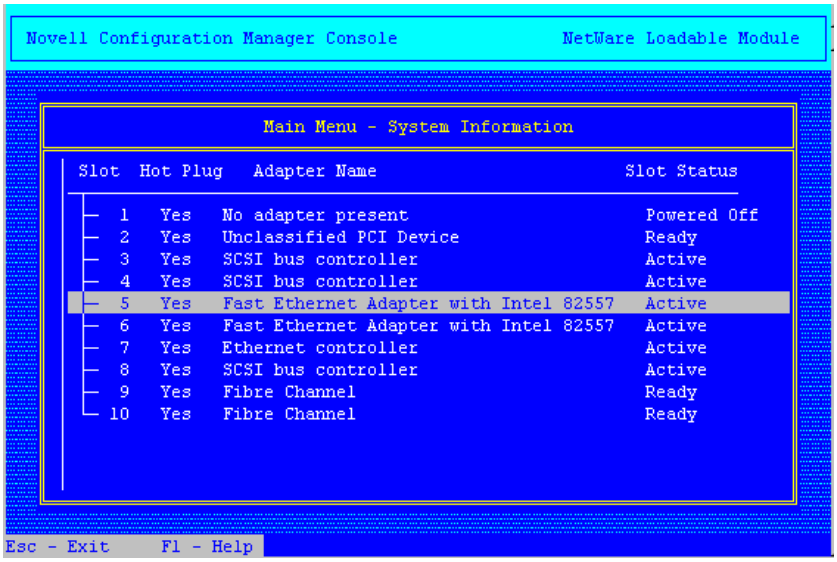
Novell Configuration Manager Console
NetWare Loadable Module
Main Menu - System Information
Slot Hot Plug Adapter Name Slot Status
1 Yes No adapter present Powered Off
2 Yes Unclassified PCI Device Ready
3 Yes SCSI bus controller Active
4 Yes SCSI bus controller Active
5 Yes Fast Ethernet Adapter with Intel 82557 Active
6 Yes Fast Ethernet Adapter with Intel 82557 Active
7 Yes Ethernet controller Active
8 Yes SCSI bus controller Active
9 Yes Fibre Channel Ready
10 Yes Fibre Channel Ready
Esc - Exit
F1 - Help

Figure 33. Hot Plug Slot Powered On (Active)

6. If the main menu does not display with the desired PCI slot (P5) shown Active, verify the PCI board is properly seated in the slot. See the HP Help File.

   Refer to Table 8 to decode the PCI (Hot Plug) LED indicators.

Table 8. PCI (Hot Plug) LED Code (rear panel view)

Amber LED	Green LED	Slot Status	Indicates This Status
Off	On	Ready	Powered on, but no driver loaded for board. Do not remove the board from the slot.
		Powered On	The PCI slot just power on, but the driver initiation is not complete yet. This only happens momentarily prior to completing driver loading. Do not remove the board from the slot.

Amber LED	Green LED	Slot Status	Indicates This Status
		Active	Power to the slot is on, and the slot is operating normally. Do not remove the board from the slot.
On	Off	Powered Off (wrong board or no board)	Power to the slot is off, but the Amber LED is on, due to a failure in the Hot Replacement process. Typically this is the result of installing the wrong board, because the replacement board must be the same type as the original PCI board. This also occurs if the board is removed, emptying the slot, and power is turned on. You can safely remove the board from this slot.
Off	Off	Powered Off	Power to the slot is off. You can safely remove the board from this slot.

7. If you replaced a Disk Drive Controller board, causing it to dismount its disk drives, re-mount the disk drives to ensure the Disk Drive Controller board is working correctly.

   Remounting the drives must be done outside the Novell Configuration Manager Console (NCMCON) user interface.

8. If you are assured of the PCI board's operation, including its driver, continue with the next step.
9. If all desired Hot Plug boards have been replaced, replace the PCI access panel (refer to your Installation Guide).

CAUTION	To prevent damage to cables, use caution when sliding the chassis into the rack, if the Cable Management Arm is not used.

10. Slide the chassis slowly back into the rack (refer to your Installation Guide).
11. Return the HP NetServer to normal operation (refer to your Installation Guide).